EOSDIS

Team Collaboration

(Video conferencing)

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NASA | Conferencing tools | GSFC

- Audio

    o One direction (e.g. broadcast a conference)

    o Multi direction (e.g. conversations)

- Video

    o One direction (e.g. again, broadcast a conference)

    o Multi stream

- Whiteboard

    o Shared drawing palette

    o Slide presentations (possible with some software)

NASA	Conferencing software	GSFC

Some common video conferencing software packages:

- CuSeeME

  - o Primarily used on Macs
  - o Public domain
  - o Growing user base
  - o Using a reflector allows multiparty conferencing
  - o Uses point to point communication

- Communique! by InSoft

  - o Proprietary applications
  - o Uses point to point communication
  - o Supported on Sun, HP, DEC (Alpha), IBM
  - o Limited to 10 users maximum

- IVS (INRIA Videoconferencing System)

    - o Uses IP multicasting
    - o Used in Europe
    - o Supported on Sun, SGI, DEC (Mips)
    - o Public domain software

- MBONE Applications - Multicast Backbone

    - o Uses IP multicasting
    - o Widely used in U.S.
    - o Public domain
    - o Supported on Sun, DEC (Alpha,MIPS), SGI, HP

MBONE is the recommended software.

- Supported workstation platform

  o Anyone with a microphone and speaker can participate

  o Any users with X window based workstations can participate in receiving video, as well as sending and receiving screen captures

  o To transmit video requires a video capture board and a camera

- Good network connectivity

  o Audio is normally sent at 64 kbps

  o Video is normally sent at 128 kbps

- All hosts participating must support multicast IP. Patches are available for those hosts that do not support multicast natively.

- Obtain the MBONE applications (nv, sd, vat, wb, vic...)

- Depending if the site/lan is already multicast, mrouted is used to send/receive IP tunnels

- If the site and lan are already supporting multicast IP, nothing is required. Go ahead.

- If there is no multicast IP on the lan, a tunnel is required.

    o Tunnels package multicast IP traffic into unicast packets

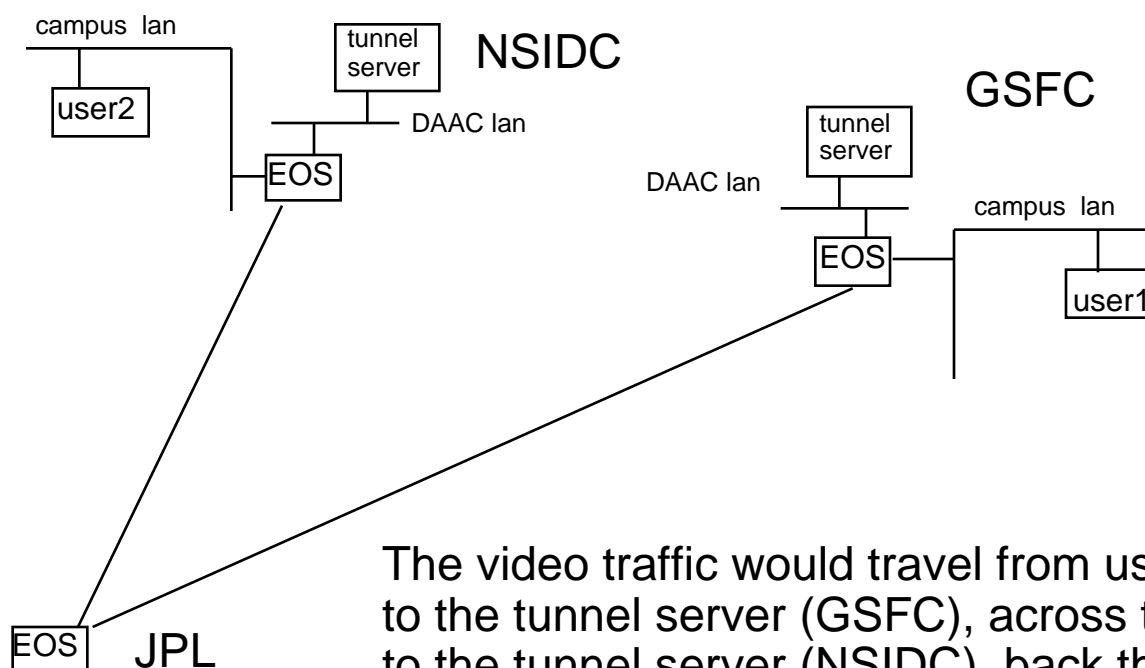   o Tunnels require cooperation at both ends

Currently, the EBnet routers are not configured for IP multicasting.

Therefore, to do multicast on EBnet (V0 circuits), we will have to utilize

tunnelling between the DAAC lans.

Options:

- If the end user has a workstation located on the V0 DAAC lan, it could run the tunnelling process to receive multicast traffic from the other V0 DAAC lans.

- If the end user has a workstation that is not located on a V0 DAAC lan, a server machine could be located on the V0 DAAC lan to receive the tunnel over the EBnet, and then re-tunnel it to the end user located off site.

Example of tunnelling between GSFC and NSIDC

campus lan

tunnel server   NSIDC

user2

DAAC lan

EOS

GSFC

tunnel server

DAAC lan

EOS   campus lan

user1

EOS   JPL

The video traffic would travel from user1 (GSFC)
to the tunnel server (GSFC), across the EBnet
to the tunnel server (NSIDC), back through
the EOS router to user2 on the campus lan at
Univ of Colorado.   NOTE: Path is not optimal since
it goes through the EOS routers twice, due to host
not being on the DAAC lan.

- Very network intensive
- MBONE software not ready for prime time, but still recommended
- Limited bandwidth available in the Internet
- Reasonable (not great) frame rates are available with some workstations